

SWBAT: define shielding and give an example

Jan 4-7:20 AM

# Welcome!!!

H. Leslie Grebe

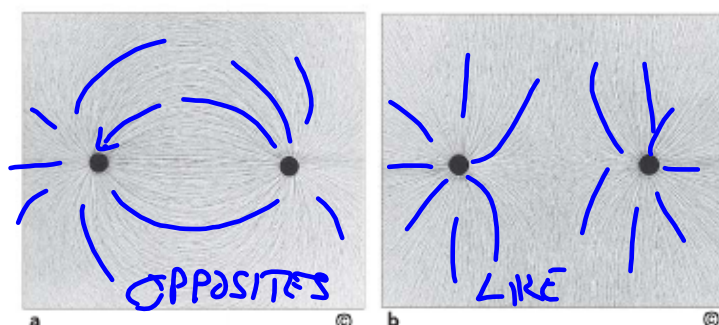
SECA Physics  
Thursday 13 February 2014

- \* Pick up:
  - slip of paper (for later)

Centering

## Opening Questions:

What can we tell about the charges in these 2 pictures?

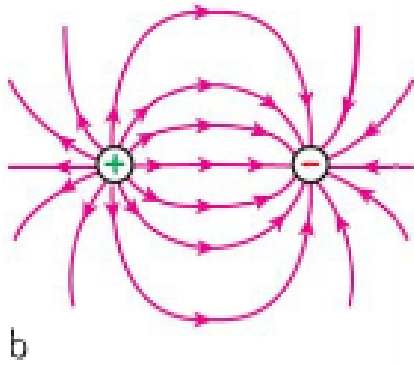


◀ **FIGURE 33.5**  
Bits of fine thread suspended in an oil bath surrounding charged conductors line up end to end along the direction of the field. The photos illustrate field

Sep 7-7:04 AM

Big Idea from yesterday:

Electric charges are surrounded by electric fields



"Rules" for E-field Lines:

① ARROWS GO FROM POSITIVE TO NEG.

② ARROWS GETTING CLOSER MEANS STRONGER

Feb 2-7:44 AM

Cell Phone Experiment!

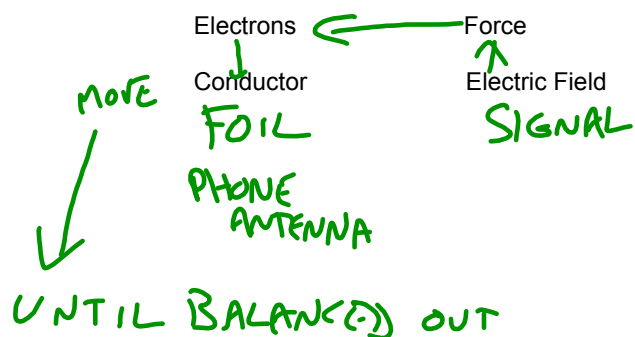
Will it ring when it is wrapped in foil?

COVERED	WILL IT RING?		RESULT:
	YES	NO	
COMPLETELY	2	3	NO
TOP HALF	4	1	YES
BOTTOM HALF	2	3	YES
ALL IN OPEN TOP	4	1	YES
ALL IN BOTTOM OPEN	3	2	NO ???

Feb 18-6:46 AM

Pair up:

Why wouldn't the cell phone ring when it was covered?



Feb 18-6:46 AM

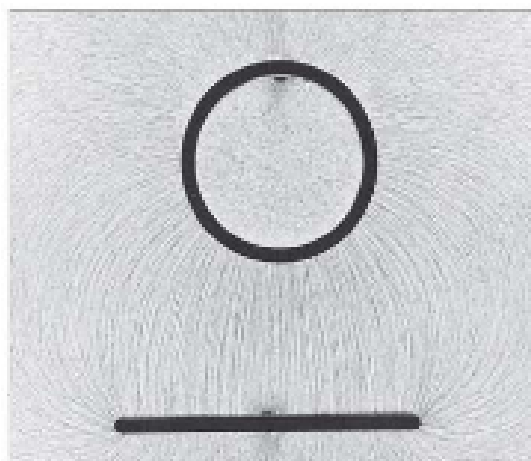
Big Idea of the Day:

### Shielding:

A closed conductor shields the inside from outside electric fields.

or...

\*\*\*NO\*\*\* electric field inside a closed empty conductor!



Feb 18-6:47 AM

Coaxial Cable - what are the layers?

(COPPER WIRE - C) SIGNAL  
 WHITE FOAM? PLASTIC? - I  
 ? - FOIL/WIRE - C  
 BLACK RUBBER - I

Think on your own:

Why do the makers of coaxial cable put a layer of foil in it?

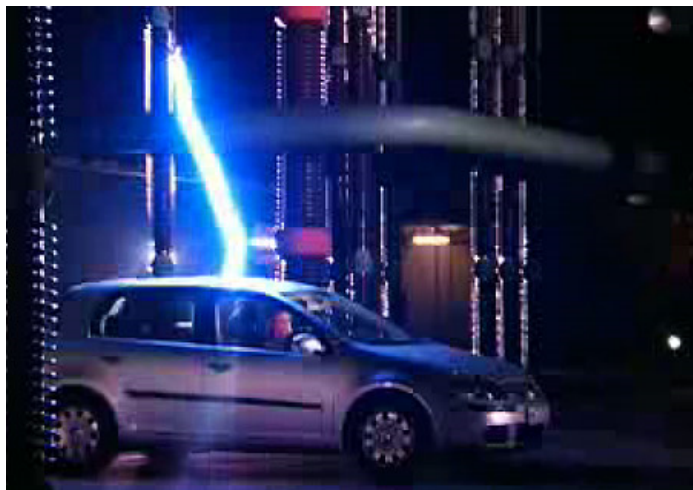
KEEP THEIR SIGNAL IN  
 KEEP OTHER SIGNALS OUT

Feb 13-8:31 AM



It's NOT about the rubber tires.

Why are you safe inside a closed car struck by lightning?



Shielding inside a closed conductor: no electric field

What kind of electric field is inside an empty conductor? NONE

Feb 18-6:37 AM

## Daily 3 Questions

- \* Every day except test/project days
- \* 3 Questions on the topics of the day
- \* Main source of daily points
- \* I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

CP Hmwk: Elevator or microwave question on handout

Your can't get your points if you don't have your NAME!!!

Name	Period
1.	
2.	
3.	

Sep 9-7:32 AM

1. Did the cell phone ring when it was completely covered in foil?

NO

2. Describe the electric field inside a closed empty conductor.

NONE

"NOTHING GETS OUT"

3. Besides the cell phone, give another example of electrical shielding.

- CAR

- RING

- COAXIAL CABLE

Jan 3-7:48 AM